

# SALMON RIVER PRODUCTION PROGRAM

9705700

## SHORT DESCRIPTION:

Continue development and emergency implementation of high priority supplementation projects; including captive broodstock; stock transfers; hatchery practice and facility reform; side stream incubation, rearing and transitional release; and monitoring and evaluation to rebuild naturally producing Snake River chinook salmon and salmon trout.

## SPONSOR/CONTRACTOR: SBT

Shoshone-Bannock Tribes

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## SUB-CONTRACTORS:

N/A

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## GOALS

### GENERAL:

Supports a healthy Columbia basin, Maintains biological diversity, Maintains genetic integrity, Increases run sizes or populations, Provides needed habitat protection, Intern/Education Program for Tribal Members

### ANADROMOUS FISH:

Production

### NPPC PROGRAM MEASURE:

1.6; 2.2A; 4.1; 7.0A; 7.1H; 7.3B; 7.4C; 7.4D; 7.4O; 7.7B

### RELATION TO MEASURE:

broodstock efforts for chinook salmon

### BIOLOGICAL OPINION ID:

Hatchery Section 7 (LSRCP); BIA Section 7 consultations; Hatchery Section 10 (IDFG and IPC)

### OTHER PLANNING DOCUMENTS:

Wy-Kan-Ush-Me Wa-Kush-Wit, Appendix A and Tables 1 and 2; NMFS Proposed Recovery Plan (4.1, 4.1.b, 4.1.d, 4.4, 4.4.c, 4.4.d, 4.5, 4.7); ISG Return to the River (Recommendations 1-10, Chpt. 8, pp 403-404); Regional Assessment of Supplementation Projects (RASP); CBFWA anadromous Fish Production Committee recommendations; US v Oregon mandate; LSRCP; these projects have been in the planning stage since 1989.

### TARGET STOCK

### LIFE STAGE

### MGMT CODE (see below)

Panther Cr. Summer Steelhead

ALL

S,N,(P),W

South Fork Salmon R. and tributaries

ALL

S,N,(L),W

Spring/Summer Chinook

Panther Cr. Spring/Summer Chinook

ALL

S,N,(L),W

Lemhi R. Spring/Summer Chinook

ALL

S,N,(L),W

Pahsimeroi R. Spring/Summer Chinook

ALL

S,N,(L),W

Upper Mainstem Salmon R. and tributaries

ALL

S,N,(L),W

Spring/Summer Chinook

Middle Mainstem Salmon R. and tributaries

ALL

S,N,(L),W

Spring/Summer Chinook

Middle Mainstem Salmon R. and tributaries

ALL

S,N,(P),W

Summer Steelhead

Pahsimeroi R. Coho

All

S,N,E,W

Lemhi R. Summer Steelhead

ALL

S,N,(P),W

Pahsimeroi R. Summer Steelhead

ALL

S,N,(P),W

Upper Mainstem Salmon R. and tributaries Summer Steelhead	ALL	S,N,(P),W
Headwaters Salmon R. and tributaries Summer Steelhead	ALL	S,N,(P),W
Salmon R. Fall Chinook	ALL	S,N,(L),W
Panther Cr Coho	ALL	S,N,E,W
Lemhi R. Coho	ALL	S,N,E,W
Headwaters Salmon R. and tributaries Spring/Summer Chinook	ALL	S,N,(L),W

#### **AFFECTED STOCK**

Variety of aquatic and terrestrials  
Sculpin spp.,  
Mountain Whitefish  
West Slope Cutthroat  
Bull Trout

#### **BENEFIT OR DETRIMENT**

Beneficial  
Beneficial  
Beneficial  
Beneficial  
Beneficial

## **BACKGROUND**

### **STREAM AREA AFFECTED**

#### **Stream name:**

Salmon R. and tribs, primarily Mid mainstem  
(French Cr. To Middle Fk.), S Fork, Upper mainstem  
(Middle Fk. To Sawtooth weir), and tribs incl.  
Panther Cr., Pahsimeroi R., Lemhi R., East Fork,  
Yankee Fork, and Valley Cr. And headwaters Salmon  
R.

#### **Stream miles affected:**

drainage Area > 7,500 sq. miles

#### **Hydro project mitigated:**

The FCRPS - in particular, Bonneville, The Dalles,  
John Day, McNary, Ice Harbor, Lower Monumental,  
Little Goose, and Lower Granite dams.

### **LAND AREA INFORMATION**

#### **Subbasin:**

Salmon River

#### **Land ownership:**

Public and Private

#### **Acres affected:**

4.8 million

### **HISTORY:**

Project development occurred in conjunction with a variety of supplementation review processes, including the RASP, Supplementation Technical Work Groups, CBFWA AFPC, IHOT, US v Oregon PAC, and various ad-hoc work groups. Traditional hatchery outplants have been replaced by attempts to release hatchery-origin salmon and steelhead in more natural ways, including presmolt releases, moving release locations further upstream, implementing side stream incubation of up to 1 million steelhead eggs per year. Juvenile Snake River spring/summer chinook salmon were collected from the East Fork Salmon River, West Fork Yankee Fork Salmon River, and Lemhi River during the fall of 1995 and are being held in captivity for broodstock. Fish are currently being held at the Eagle, Idaho hatchery and Manchester facility and a comprehensive plan is being completed by the IDFG, SBT, USFWS, and NMFS. The SBT plan to utilize a portion or all of the captive broodstock progeny as donors for the high priority supplementation projects. Associated with this project is immediate fish hatchery practice and facility reform at Sawtooth and East Fork (Measure 7.0A) that is being assisted by the IHOT hatchery audit process, and side stream incubation technology currently being tested with salmon trout in the Salmon River in coordination with the Lemhi Model Watershed. The Nez Perce Tribe has initiated the contract for the supplementation activities in Johnson Creek that the Shoshone-Bannock Tribes are cooperators on.

### **BIOLOGICAL RESULTS ACHIEVED:**

The side stream incubation project has grown from 200,000 steelhead eggs in the upper Salmon River 1995 to 700,000 eggs in 19

96 and a projected 1,000,000 eggs in 1997. The hatching success of the project has been 80-90%, and the resultant number of returning adults will be determined in 1998 on.

#### **PROJECT REPORTS AND PAPERS:**

Section 10 ESA Application Permit (captive broodstock); SBT side stream incubation study reports; Section 7 ESA Biological Assessments and Concurrence Letters; US v Oregon Production Reports.

#### **ADAPTIVE MANAGEMENT IMPLICATIONS:**

This project is expected to utilize artificial production techniques to assist rebuilding of naturally producing chinook and salmon trout populations. However, such techniques are intensely debated, to the detriment of the resource. Thus, despite the critical uncertainties, this proposed project is intended to move forward with resource protection with what we do know, while attempting to answer the uncertainties through adaptive management.

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## **PURPOSE AND METHODS**

#### **SPECIFIC MEASUREABLE OBJECTIVES:**

Objectives: finalize the development of new natural production augmentation facilities and program as an integral part of the master plans for recovery of snake River spring/summer chinook in the Salmon River system; and implement the processes required to implement the programs. Initiate several donor broodstock alternatives (collecting juveniles for captive broodstock, side-stream incubation of hatchery-origin eggs, release adults into unseeded areas, etc.) immediately, while proceeding with development of other alternative broodstock sources, incubation, rearing and release methods. Compile biological data, refine production and harvest goals, propose and select potential sites for adult collection and juvenile rearing and release, develop and implement strategies to acquire adequate water sources.

#### **CRITICAL UNCERTAINTIES:**

There is significant uncertainty associated with implementation of captive broodstock as an appropriate donor broodstock for supplementation programs. Many of these uncertainties have been revealed and corrected with the Stanley Basin Sockeye Program, but more are anticipated with spring/summer chinook salmon. It is unknown how many of these uncertainties can be resolved by the project. Major uncertainties are associated with declining spawner-to-recruit ratios due to the mainstem snake and Columbia River hydrosystem affects. The risk associated with holding 500 - 1,000 juvenile salmon captive until adult reproductive maturity is significantly less than the theoretical returns had those fish been allowed to mature in the natural environment. The risk of extinction is greater than the unknown genetic risks associated with implementation.

#### **BIOLOGICAL NEED:**

Present escapement levels and recent trends indicate that the naturally producing Salmon River spring/summer chinook and salmon trout are in danger of extinction. Captive broodstock programs for Snake River spring/summer chinook are supported by the NMFS proposed recovery plan and the NPPC's Fish and Wildlife Program and are considered a viable (but not the only) recovery tool by the SBT. Considerable effort has previously been committed by the fishery managers to explain the sound biological justification of these projects, based on the Integrated System Plan Chapter C, and the Regional Assessment of Supplementation Project, through the US v Oregon Production Advisory Committee and the Columbia Basin Fish and Wildlife Authority Anadromous Fish Production Committee.

Declines of naturally producing chinook salmon in the upper Salmon River system (Middle Fork Salmon River and above) have been more dramatic than elsewhere in the Snake River Basin in the recent past. We are presently in an emergency situation where dramatic and unprecedented efforts are needed to prevent extinction and to preserve future options for use of artificial production to rebuild naturally producing fish. The supplementation projects that the SBT have pursued for over five years, in coordination with the US v Oregon PAC, CBFWA Anadromous Fish Production Committee, and the relevant co-managers (IDFG, NMFS, USFWS, NPT), and are included in the Columbia Basin Tribal Restoration Plan (Appendix A and Tables 1 and 2), the Spirit of the Salmon, and the 1995 NMFS appropriations language report, are included in the "High Priority Supplementation Projects" list. The SBT, IDFG, and USFWS decided to immediately begin development of broodstocks from local naturally producing populations for genetic conservation and natural production augmentation. This decision was a result of a number of factors including: increased emphasis on natural production and endemic stock recovery; consultations and requirements resulting from listing of Snake River spring/summer chinook as threatened; and preferred strategies for use of artificial propagation identified in the NMFS proposed recovery plan.

### **HYPOTHESIS TO BE TESTED:**

- H(1): Chinook salmon supplementation in the Lemhi River, Yankee Fork Salmon River, and Johnson Creek does not improve adult salmon survival and natural reproduction success.
- H(2): Chinook salmon captive broodstock techniques do not provide appropriate donor broodstock for supplementation projects in the Lemhi River, East Fork Salmon River, and Yankee Fork Salmon River.
- H(3): Hatchery practice and facility reform at the Sawtooth National Fish Hatchery and East Fork Salmon River does not improve adult salmon survival and natural reproduction success.
- H(4): Side stream incubation of salmon trout does not provide effective use of artificial production to increase natural production.
- H(5): Establishing a fish production program at the Shoshone-Bannock Tribes for the Salmon River system does not improve the use of artificial production as a tool for resource protection, enhancement, and restoration.

### **ALTERNATIVE APPROACHES:**

Many alternative approaches have been and are being analyzed, and this project will continue to add valuable information to that knowledge by implementing additional actions. The project review has included RASP, STWG, CBFWA AFPC, Subbasin Planning and System Planning Modeling, ISP Chapter C, and the Draft Programmatic Environmental Impact Statement.

### **JUSTIFICATION FOR PLANNING:**

This project implements production activities while assessing and coordinating adaptive management, and is therefore not focused on planning and coordination.

### **METHODS:**

Between 500 to 1,000 juvenile spring/summer chinook salmon will be collected from the three captive broodstock populations annually, and held in captivity (currently, plans call for captivity at Eagle Fish Hatchery, Idaho and Manchester, WA), and released as adults to spawn naturally (Idaho) and spawned artificially and the progeny released back into the natal stream (Tribes). Supplementation facilities (side stream incubation, early rearing, and transitional release ponds) will be developed and utilized to provide the best possible use of artificial production to rebuild naturally producing populations. Side stream incubation is currently being implemented for salmon trout so that the technology and hardware will be in place for chinook by the time donor broodstock returns starting in 1997. A comprehensive monitoring and evaluation program is currently being developed to evaluate all aspects of program performance and to determine optimum strategies. Other appropriate donor broodstock techniques will be incorporated as needed. Training and internships will be provided to Tribal Members so that they can manage the project and the facilities as part of the federal government trust responsibility.

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## **PLANNED ACTIVITIES**

### **SCHEDULE:**

<u>Planning Phase</u>	<u>Start</u> FY 1996	<u>End</u> FY 1998	<u>Subcontractor</u> NONE
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<u>Task</u> FY 1996 - Assist completion of comprehensive plan by May 1, 1996 and submit Section 10 permit application. Finalize Johnson Creek supplementation plans with the NPT and IDFG. Finalize plans and permitting for the supplementation facilities in the Lemhi River, East Fork Salmon River, and Yankee Fork Salmon River.			
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### **PROJECT COMPLETION DATE:**

2008

### **CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:**

Planning and design will place heavy consideration on minimizing the costs for O&M. The facilities will be low-technology, with minimum O&M for the numbers and quality of fish cultured. The primary event that may affect the project's timing is if funds are not made available to the SBT for this program.

The major impediment to the project's success is if the lower Snake River is not immediately restored to permanent natural river levels - if this does not happen, the stock:recruitment ratio will result in stock extinctions and reintroduction techniques will have to be implemented.

Currently, the SBT have been unsuccessful in getting the high priority supplementation projects implemented largely due to no

planning funds and difficulties with resolving donor broodstock concerns. The captive broodstock component of the program attempts to allow us to proceed with on-the-ground implementation while continuing to attempt to resolve the many controversial issues impeding the use of artificial production to recover naturally producing stocks.

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## OUTCOMES, MONITORING AND EVALUATION

### SUMMARY OF EXPECTED OUTCOMES

#### **Expected performance of target population or quality change in land area affected:**

This program should provide adult returns to these populations in future years thus reducing the probability of extinction and providing opportunity for future supplementation and mitigation. If successful, this program will provide a minimum escapement of 150 adults on an annual basis.

Augment and enhance natural production of Snake River spring/summer chinook and salmon trout in the Salmon River system while retaining the character, adaptability and fitness of the natural stocks while benefiting from increased productivity expected from artificial incubation and rearing. Reduce risk of extinction that now faces Salmon River chinook and naturally producing salmon trout, and preserve the population characteristics found in naturally producing stocks. Increase harvest opportunities for both treaty and non-treaty fishers. Contribute significantly to meeting the doubling goal established by the Power Planning Council, while restoring biological and genetic diversity; and fulfill the mandates of US v Oregon to utilize artificial production to rebuild naturally producing populations, Train Tribal Members to manage and operate the program and facilities upon completion.

#### **Present utilization and conservation potential of target population or area:**

The areas slated for supplementation under this project are utilized by Shoshone-bannock Tribal Members for subsistence harvest of anadromous fish. The potential for recovery is great, if the four lower snake River dams are moth-balled and the river returned to its natural level. The local habitat is in generally good condition, and many of the targeted supplementation areas have had habitat improvement projects initiated.

#### **Assumed historic status of utilization and conservation potential:**

The Salmon River system once supported at least 40% of the upper Columbia River spring/summer chinook runs. The historic utilization supported many thousands of indigenous peoples since time-immemorial. Harvest was shared between non-indians and Indians until 1978 when the sport fishery was closed, and converted to hatchery stocks only. Harvest in the Salmon R. declined from 15,866 in 1960 to 576 in 1974.

#### **Long term expected utilization and conservation potential for target population or habitat:**

Harvestable self-sustaining naturally-producing populations of endemic anadromous fish.

#### **Contribution toward long-term goal:**

Restoration of fish populations for utilization while maintaining genetic and biological diversity.

#### **Indirect biological or environmental changes:**

additional habitat for resident fish with the development of acclimation facilities and side-stream rearing ponds; additional nutrients to the aquatic resource; increased awareness and public/private stewardship.

#### **Physical products:**

Side-stream incubators, side-stream rearing ponds, acclimation facilities, adult collection, holding, and spawning facilities (side-stream), facility maintenance and housing areas. Goals include Subbasin planning objectives of 1-million spring chinook smolt equivalents released into the Lemhi R., 350,000 spring/summer chinook smolt equivalents released into Yankee Fork, 750,000 smolt equivalents into the East Fork, and 250,000 smolt equivalents released into Johnson Cr.

#### **Environmental attributes affected by the project:**

N/A - Land use changes may include the construction of low-tech facilities and housing.

**Changes assumed or expected for affected environmental attributes:**

N/A - affects to environmental attributes will be kept in as natural a way as possible.

**Measure of attribute changes:**

N/A - not a habitat improvement project.

**Assessment of effects on project outcomes of critical uncertainty:**

Primarily by monitoring juvenile outmigrations from test streams, and monitoring adult returns and reproductive success. This information will enable us to determine if the production actions are maintaining, not maintaining, or rebuilding the populations in the headwaters areas above major mainstem migration impediments.

**Information products:**

Workshops, information reports, production reports, natural spawning levels, juvenile densities.

**Coordination outcomes:**

Public involvement/caring, inter-tribal co-management, co-management with other sovereigns, agencies, landowners and industries.

**MONITORING APPROACH**

Between 500 to 1,000 juvenile spring/summer chinook salmon will be collected from the three captive broodstock populations annually, and held in captivity (currently, plans call for captivity at Eagle Fish Hatchery, Idaho and Manchester, WA), and released as adults to spawn naturally (Idaho) and spawned artificially and the progeny released back into the tail stream (Tribes). Supplementation facilities (side stream incubation, early rearing, and transitional release ponds) will be developed and utilized to provide the best possible use of artificial production to rebuild naturally producing populations. Side stream incubation is currently being implemented for salmon trout so that the technology and hardware will be in place for chinook by the time donor broodstock returns starting in 1997. A comprehensive monitoring and evaluation program is currently being developed to evaluate all aspects of program performance and to determine optimum strategies.

**Provisions to monitor population status or habitat quality:**

Monitoring (including assistance from cooperating projects) includes juvenile abundance, smolt outmigration, and adult returns; which will be compared to neighboring unsupplemented areas and fisheries mitigation hatchery returns.

**Data analysis and evaluation:**

Simple bivariate and multivariate analysis comparing returns and abundances through time and between areas.

**Information feed back to management decisions:**

Through close coordination with the many production forums currently in place.

**Critical uncertainties affecting project's outcomes:**

Immediate removal of the earthen-fill sections of the four lower snake River dams and the restoration of the river to its natural condition. This decision is supposed to be made in 1999, and it is currently 1999 in the US Army Corps of Engineer's budget process, and needs initiated immediately.

**EVALUATION**

The overall performance can be measured by rebuilding naturally-producing Salmon R. salmon populations to harvestable levels.

**Incorporating new information regarding uncertainties:**

Through discussions and processes already in place, including on-going co-management and independent scientific review.

**Increasing public awareness of F&W activities:**

By providing avenues and incentives for public and private cooperation with the low-tech production facilities.

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## RELATIONSHIPS

### RELATED BPA PROJECT

9700100 Captive Rearing Initiative for Salmon River Chinook Salmon

9401700 Lemhi Model Watershed

9005500 Steelhead Supplementation Studies

9405000 Salmon River Habitat Enhancement

8909803 Idaho Chinook Salmon Supplementation Studies (ISS)

### RELATED NON-BPA PROJECT

Hells Canyon Settlement Agreement/Idaho Power Company

Lower Snake River Compensation Plan/BPA

### RELATIONSHIP

Provides rearing of captive broodstock for the SBT portion of the project (captive broodstock)

Coordination of the side-stream incubation project

Information sharing

Incorporate a low-tech supplementation facility in the Yankee Fork

Provides manpower for fish collection and planning, implementing, and monitoring these supplementation activities

### RELATIONSHIP

Coordination, and hatchery facilities

Coordination, and hatchery facilities

### OPPORTUNITIES FOR COOPERATION:

Closest coordination is with IDFG for obtaining fish and eggs, as well as NMFS for ESA considerations, and USFWS (LSRCP) for facility and program assistance, and land management agencies (USFS, BLM). Ongoing cooperation includes the Lemhi Model Watershed, landowners, schools, community organizations, Idaho Power Company (IPC) and federal and state hatcheries (shared equipment and coordination under IHOT policies and agreements), US v Oregon CRFMP committees, habitat improvement projects, workshops, public education and information, and other tribes.

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## COSTS AND FTE

### FUTURE FUNDING NEEDS:

### PAST OBLIGATIONS (incl. 1997 if done):

<u>FY</u>	<u>\$ NEED</u>	<u>% PLAN</u>	<u>% IMPLEMENT</u>	<u>% O AND M</u>
1998	\$200,000	38%	38%	25%
1999	\$475,000	10%	68%	22%
2000	\$200,000	13%	38%	50%
2001	\$200,000	13%	38%	50%
2002	\$200,000	13%	38%	50%

### OTHER NON-FINANCIAL SUPPORTERS:

Idaho congressional delegates, landowners, Lemhi Model Watershed, parties to US v Oregon.

**LONGER TERM COSTS:** Approximately \$150,000.00 per year for implementation.  
Approximately \$50,000 for operations and maintenance.

**1997 OVERHEAD PERCENT:** 26%

### HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:

Salaries and Fringe Benefits only

**CONTRACTOR FTE:** 3

**SUBCONTRACTOR FTE:** 0

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